

Office Action Summary

Application No.

10/029,035

Applicant(s)

BAE, YOUNG HO

Examiner

Ram N. Kackar

Art Unit

1716

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-8, 10, 16 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-8, 10, 16 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/22)
Paper No(s)/Mail Date _____
- 4) ☒ Interview Summary (PTO-413)
Paper No(s)/Mail Date 6/1/2010.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(c), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(c) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 5/25/2010 has been entered.

Drawings

2. The drawing amendments received on 10/19/2004, 5/11/2005, 5/3/2006, 12/8/2006, 10/12/2007, 4/16/2008, 1/7/2009 and 6/12/2009 are withdrawn.

Drawing amendments dated 5/25/2010 withdraw all the intervening drawing amendments to bring the drawings to their state as originally filed (Dated 12/28/2001). The five sheets of drawings submitted on 5/25/2010 are however incomplete. The sheet containing Fig 3 and 4A is missing. There is no need to provide this missing sheet however, since original sheet 2 containing these figures is in the system and is relied upon for this examination.

Specification

3. Specification amendments submitted on 3/1/2004, 10/19/2004, 5/11/2005, 5/3/2006, 12/8/2006, 10/12/2007, 4/16/2008, 1/7/2009 and 6/12/2009 are withdrawn. The amendment dated 5/25/2010 amends paragraphs 20 and 37 of the original specification dated 12/28/2001. It is noted that the specification being translation in English of a foreign language is not entirely

clear and accurate. However, any amendment to improve its readability is likely to bring a new matter issue.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4-8, 10, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants admitted prior art (AAPA) in view of Tepman et al (US 5589224).

Applicants admitted prior art (AAPA) as disclosed in Figs 1 to Fig 4 A, B, C and D and the specification paragraphs 2-23 discloses all limitations of these claims including the support bar, lift pins and robot arm.

Specifically AAPA discloses:

A vacuum deposition apparatus having a process chamber (Fig 1-4A);

a susceptor for heating a substrate;

all four edges of the susceptor acting as a sliding portion on which to slide the substrate to a stopped position by stopping pins placed on the sliding portion (Fig 3 28 and 4A);

the susceptor having a raised perimeter portion structured to accommodate sliding of the substrate (Fig 4A);

means for positioning the glass or quartz substrate into contact with the susceptor at a non-parallel angle to a top surface of the susceptor and for permitting edges of the glass or quartz

substrate to slide along a portion of the susceptor toward stopping pins until the glass or quartz substrate is substantially parallel with the susceptor (Fig 4C and 4D and description); and

wherein a length of said raised perimeter portion, measured from said groove, to the recessed center portion of the susceptor is about 5 mm (Fig 3 and description).

AAPA does not disclose the groove to collect material disposed on the susceptor and increased dimension of the sliding part from 5mm to 10 mm.

Tepman et al disclose a vacuum deposition apparatus for PVD, CVD, sputtering, ion implanters etc (Col 1 lines 10-19), lift pins (Fig 1-30), robot arm (Fig 4 and Col 2 lines 13-16), stopping pin (40 being used to align the substrate) and groove around susceptor to collect deposition so that build up on the surface of the susceptor may not cause problem by sticking to the substrate (Fig 3-38 and Col 4 lines 54-63).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have grooves on the susceptor in order to avoid problems of substrate sticking.

Regarding increasing the sliding distance from 5mm to 10mm, this is only an optimization to improve loading of the substrate. This kind of optimization has been considered obvious.

It is noted that, original specification suggests the distance in the claimed invention to be 3-10mm (See for example Para 28 and claim 2 of the publication (US 2002/0083896)).

Regarding the shape of the grooves: It was held in *re Dailey*, 357 F.2d 669, 149 USPQ 47 (CCPA 1966) that the shape was a matter of choice which a person of ordinary skill in the art would have found obvious absent persuasive evidence that the particular shape was significant. (Also see MPEP 2144.04(d)).

Similarly, *regarding change in size/proportion*: It was held in *re Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), cert. denied, 469 U.S. 830, 225 USPQ 232 (1984) that where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

6. Claims 4-8, 10, 16 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over applicants admitted prior art (AAPA) in view of DuBois et al (US 5855687).

AAPA is discussed above.

DuBois et al like Tepman as above disclose a vacuum deposition apparatus for CVD with heatable susceptor (Col 3 line 22-42 and lines 38-40), lift pins and robot arm (Col 5 lines 49-51), groove around susceptor to collect deposition so that build up may not cause problem by sticking to the substrate (Col 4 lines 43-48). Further, entire area inside the groove is available as a sliding part.

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have grooves on the susceptor in order to avoid problems of substrate sticking.

7. Claim 4 is also rejected under 35 U.S.C. 103(a) as being unpatentable over (AAPA) in view of Tepman et al (US 5589224) or alternatively in view of DuBois et al (US 5855687) as applied to claims (4-8, 10, 16 and 18) and further in view of Rempei Nakata (US 5119761).

Tepman et al and DuBois et al as discussed above do not disclose the susceptor to be made of Quartz.

Quartz susceptors are common for thermal processing for its thermal insulation properties.

Rempei Nakata discloses a quartz susceptor (Fig 12-106 and Col 1 lines 44-49).

Therefore it would have been obvious for one of ordinary skill in the art at the time of invention to have a susceptor of quartz for its excellent thermal properties of insulation.

Response to Amendment

Applicant's arguments filed 5/25/2010 have been fully considered but they are not persuasive.

Applicants argue that while Tepman discloses a groove which is used to permit additional buildup of deposited material relative to the planar configuration along the edge of substrate without the material sticking to the substrate and without interfering with the positioning and orientation of the substrate on the pedestal, and shows centering pins in the groove (col. 7, lines 36-51), Tepman et al do not disclose a slide area of a raised perimeter to minimize occurrence of glass substrate breakage due to severe bending of the glass substrate.

In response it is noted that Tepman et al disclose enough slide area to allow the substrate bent at edges to slide in to horizontal shape along the susceptor. To limit the slide area by having a recess is disclosed in the AAPA. However having a recess does not appear to help the sliding process in any way.

Applicants argue against Dubois et al also and state that Dubois et al disclose providing a groove 44, one of the purposes of which is to receive deposition which would otherwise build up at the edge of a wafer (col. 4, lines 43-48). Applicants argue that Dubois et al do not disclose a slide area of a raised perimeter to minimize occurrence of glass substrate breakage due to severe bending of the glass substrate.

Examiner's response is similar as above.

Applicants argue that the outstanding Office Action relies on a statement by the Court in *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984) to the effect that, where the only difference between the prior art and the claims was a relative dimension of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device.

Applicants argue that this statement does not apply to the facts of this case, where the sliding dimension of the prior art results in broken substrates due to severe substrate bending, whereas the sliding dimension of the claimed invention minimizes broken substrates by providing enough room for substrate expansion without severe bending. Thus, the claimed invention clearly performs differently than does the applied art.

In response it is noted that AAPA discloses a sliding dimension of 5 mm and according to the specification it could be 3-10mm for proper operation. It is further noted that, substrate sizes vary and to optimize susceptor dimension according to substrate size in order to have proper load/unload would be in the nature of obvious adjustments only. Such an adjustment would provide predictable benefit and would be of routine type of apparatus maintenance.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ram N. Kackar whose telephone number is 571 272 1436. The examiner can normally be reached on M-F 8:00 A.M to 5:P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571 272 1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Ram N Kackar/
Primary Examiner, Art Unit 1716